

# MARINE REVIEW.

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No. 19.

## Explosion Resulting From Bad River Water.

We have received a copy of the report of the local inspectors at Chicago, Cyrus H. Sinclair and Stuart H. Moore, to James A. Dumont, supervising inspector general of steam vessels of the United States, on the explosion of the boiler of the tug Charles W. Parker, in Chicago river on Oct. 4. The inspectors deal fully with the accident and attribute it to the use of Chicago river water for making steam. The Parker with three other tugs was engaged in an effort to release the steamer H. S. Pickands from the bottom of the east draw of Archer avenue bridge when the explosion occurred, resulting in the loss of ten lives and injury to others.

"The boat was working with a full head of steam," says the report of the inspectors, "when she blew out the crown sheet of her boiler. The boiler was found about 500 feet from the scene of the explosion, and an examination showed that it was in good



condition, except that the crown sheet and stays leading to top of dome and shell had disappeared, the fusible plug being but partly melted out. Three days later, we examined the hull of the boat which had been placed in dry dock and found the missing crown sheet with nearly all of the stays attached. An examination of the engine disclosed the fact that at the time of the explosion, or an instant before it, the engine had been reversed from going ahead to backing up motion. We have made a very careful investigation of the cause leading up to this accident, and find that the captain and engineer of the boat were considered very careful, reliable and experienced men, having had years of experience in this line of work, and they both knew full well the dangers of the locality in which they were engaged. The water in this portion of the river is of a very dangerous character, owing to the proximity of the slaughter and gas houses on the river, and from the facts that we have been able to obtain it is our opinion that this accident was caused by the use of this water for making steam. The effect was to cause the boiler to foam badly, thereby making it almost impossible for the engi-

neer to keep the water in the boiler at the proper height. The sudden stopping and starting of the engine, if the water in the boiler was low, would be sufficient to cause this accident. This boiler was well built and well taken care of and under ordinary conditions would have lasted a life-time."

## Twin-Screw Light-House Tender.

An advertisement elsewhere in this issue calls for bids for the construction of another light-house tender, the Maple, a twin-screw steamer to be used on some part of the coast. As lake builders are now engaged on five boats of this class for the government, all but one of which are for coast service, it is probable that this last contract will also come to the lakes. It is not probable, however, that the competition will be as severe as it has been in other cases. Prices on former contracts taken from the coast builders are very low, and some of the shipbuilders,

notably F. W. Wheeler & Co. and the Cleveland Ship Building Company have about all they can do for the coming winter. Then, too, it can not be denied that the delay connected with government work and the red tape attached to it are features that make it undesirable.

## In Charge of the Lake Marine Exhibit.

Mrs. Annie C. Meyers, lady alternate of the Worlds Columbian Exposition to whom has been entrusted the work of preparing an exhibit of the lake marine, is the widow of the late Capt. Victor E. Meyers. He was the first captain backed by a Chicago syndicate to successfully sail by the way of the Welland canal and the St. Lawrence river to the West Indies and return. Prior to his death he commanded the freight steamer City of New York, of the Union Steamboat Company, plying between Buffalo and Chicago. Mrs. Meyers is thought to be in every way qualified for the work. She at one time held a position in the patent office and has for many years prominently connected with foreign and home missionary movements.



### Lake Freight Situation.

Navigation is certain to close with advanced freights, and it would seem that such a condition should have a beneficial effect on sales of ore during the coming winter. With Duluth wheat at 5 cents and Chicago at 3½ cents, it is impossible to quote ore rates, as the market is very much unsettled. From Escanaba \$1.10 has been paid and \$1.50 is freely offered from Ashland. Even at these prices only a few boats are found to accept Escanaba loads and there is nothing offering for Ashland. The grain movement will undoubtedly hold out to the close, as all available tonnage is being taken at present figures. Saginaw bay lumber freights are again advanced 25 cents, to a basis of \$2.25 from Oscoda or Bay City to Tonawanda. Lake Michigan coal freights are also higher at 65 cents to Milwaukee and 60 cents to Escanaba but the rate to the head of Lake Superior is unchanged at 40 cents.

### Competition in Steel Freight Carriers.

After examining in the MARINE REVIEW the plans of the Cleveland Ship Building Company for the two lake monitors, upon which work has been begun for the Lake Superior Iron Company, Capt. McDougall said that if other shipbuilders of the lakes propose to build cheaper boats after such plans they will find competition from the American Steel Barge Company that will prove disastrous to them. "By the time navigation opens next spring," he added, "we will have ready for traffic vessels that will be distinguished as our product from the ore in the ground to the finished boat. The ore is still in the mines but will be smelted, made into plate and used in the construction of whalebacks during the coming winter."

The Steel and Iron Company of Superior, controlled by stockholders of the Northern Pacific Railway and the American Steel Barge Company, contracted, a few days ago with the Wisconsin central syndicate of mine owners, another adjunct of the barge company for a block of ore to be mined and delivered by rail after the close of navigation. Plate and other ship material will accordingly be made at the head of Lake Superior during the coming winter, and it is to these plans that Capt. McDougall attributes the power of the barge company in competition for the building of boats. It would seem, however, that in order to build whalebacks for outsiders, if any are wanted, the barge company will be compelled to greatly reduce the prices given to ore companies and others who have made inquiry regarding their cost. The manufacture of steel at West Superior or Duluth will be of little advantage, as builders at lower lake ports can buy steel or iron of the best quality at the lowest possible prices. They have experience in ship building, and if the present type of steel vessels is too expensive and is too substantial for the service required of it they can build cheaper boats and will find no trouble in getting material at low figures.

### Iron Center of the Future.

"A reduction of rail rate on ore from the mines to lake ports must come" said a gentleman interested in mining affairs at Republic Mich. "Some concession was obtained this year but it amounted to little. At the expense of being called an idiot I am going to tell you that some day the ore shipments by lake will drop off entirely. Make some figures for me. Put down the rate from the mine to the lake port, and under it handling and trimming charges; add the lake rate and handling charges at lower lake ports, and finally put down the rail rate to the furnaces. Don't add interest on investment in the ore handling plants at the different ports but tell me how much you have. It amounts to about \$3.50 or \$4. Railroads can carry a ton a good many miles for \$4. The vicinity of Chicago will be the iron producing center of the United States before many decades. In the matter of distance from ore to coal mines Chicago is a happy medium. Duluth and the head of Lake Superior are as much too

far from the coal mines as the present furnaces are too far from the ore mines. I see a coke blast furnace has been put in at Duluth. This is the first attempt of the kind and capitalists have been slow to start it. They will be well pleased if they can turn out pig-iron as cheaply as it can be done at Pittsburgh."

### A Moonlight Rainbow and a Fog Canon.

"Four or five trips ago we passed through the most peculiar formation of fog that I have ever seen," said an old master who had been sailing since he was thirteen years old. "We had been running under check for an half hour or more in a very heavy fog when we went out of it very suddenly into as clear weather as it is today. On looking back I saw what appeared to be a perpendicular wall of fog, at least 200 feet high. It was a beautiful sight. The fog was so thick that it seemed as if you could almost see the hole where we came out of it. Imagine my surprise on looking over the quarter and seeing another wall almost as high and as perfect as the one we came through. There we were in a clear valley 400 or 500 feet wide with fog banks on either side. Our course run the boat through this valley for about 15 minutes, but the wall we had left kept moving toward us until it had passed over."

"About fifteen miles off Escanaba," began another captain, "we struck a shower of rain one morning three trips ago and a very beautiful rainbow showed up. The squall kept moving toward the boat and I soon saw that the bow was coming with it. One end came as near as 300 feet before it vanished. You know it is said there is a pot of gold at the end of a rainbow, but it must have been on the other end, because I was near enough to see it if there was any there."

"I feel like a martyr every time I tell this, but I keep on telling it," said another master of a big steel steamer, "hoping to find some one who will believe it. Years after I am laid away some scientific land lubber will discover it and get two or three letters added to his name. We were on Lake Superior one night, as pretty a moonlight night as I ever saw, when a few rain clouds gathered in the west and within an hour let down a warm summer shower in the moonlight. The shower and the moonlight was a poem, but imagine my surprise on seeing a dim rainbow forming. It only lasted a few moments, and I never expect to see another rainbow by moonlight, but I saw that."

That put an end to the rainbow tales, but another captain ventured the following experience with a mirage. "The owner and a party of friends were making a trip with me and they were all sitting out on deck, when the owner pointed off and asked what boat it was he saw. I told him and in a few minutes its double appeared at the side. He repeated the question and after I studied a moment I repeated the name. He looked vexed, but just then the mirage came to my rescue by inverting itself and showing to the delighted party that they had really seen a mirage." Fairplay gives the following interesting manifestations of of phenomena at sea: "The Warren Hastings, a ship of the line, was struck on the masts with three electric balls. In an electric gale encountered by the H. M. S. Griper, 100 miles west of the Fjord of Trondheim, Norway, there was in addition to the lightning and St. Elmo's fire an exhibition of fire globes at the tip of each mast. In this storm the barometer was only slightly effected. Not long ago the steamer Pathan, bound from Japan to New York, after witnessing a remarkable shower of shooting stars in the Atlantic, was also favored with another exhibition of natural fireworks in the Mediterranean, her masts and yards being illuminated with globes of fire, which leaped from point to point and ran along the stays as if they were having a game."

"Had a hard time getting around the sunken steamer Peck," said the captain of a steamer towing two McDougall barges.

"Why?"

"The pigs smelled the swill in her, and nothing but the tow line kept them from going for it."



### Three New Steel Steamers.

Contracts for three more steel vessels have been closed within the past week. The latest announcement is from the Cleveland-Cliff Mining Company, owning the Pontiac, Frontenac and other vessels and represented in Cleveland by President W. G. Mather. The Detroit Dry Dock Company will build for the mining company a steel boat for carrying coal and pig iron between Lake Superior and Lake Erie ports. The boat will not be large, as she is to be built for this special trade. She will cost about \$100,000.

The Minnesota Steamship Company's action in contracting for two steel steamers 330 feet keel, 45 feet beam and 24½ feet deep, with 54 inches water bottom, shows the tendency toward big boats. One of these steamers will be built at the Globe yard, Cleveland, and the other, very probably, at the Chicago Ship Building Company's yard, in which the stockholders of the Globe Company are largely interested. The boats will have nine hatches, so that notwithstanding their increased size it is expected to unload them in a single day. With three 12-foot boilers the new boats will have increased boiler power. The engines will be the same as those in the other boats of the fleet, excepting in the stroke, which will be 48 inches.

### Cleveland Matters.

A subscription list to provide a lake marine exhibit at the World's Columbian Exposition can be found at the MARINE REVIEW office.

Fifteen miles an hour is the speed performance of the steel steam yacht Wadena, between Long point and the Welland canal. The engines did not get warm and everything worked satisfactorily.

Over \$20,000 has been subscribed at Buffalo on the stock list for the E. M. B. A. steel steamer. Other ports must hurry or it will be a Buffalo boat.

### Notice to Mariners.

Notice is given by order of the light-house board that the structure from which the pierhead light at Kewaunee, Lake Michigan, Wisconsin, is shown has been moved about 200 feet nearer the outer end of the north pier, and that, on and after Nov. 15, 1891, a fixed red tubular-lantern light will be exhibited, suspended 25 feet above lake level, from a post set at the outer end of the north pier. The latter light will be visible in clear weather two or three statute miles, and will form with the main pierhead light a range showing the direction of the piers and the course to be followed in entering the harbor. The characteristics of the main light remain unchanged.

### Milwaukee's Big Dry Dock Deal—Steel Plant.

Special Correspondence to the MARINE REVIEW.

MILWAUKEE, Wis., Nov. 5.—A shipyard deal involving nearly half a million dollars has just been closed at this port, and in consequence those two well known shipyard properties, the Wolf & Davidson yard and the Milwaukee yard, will hereafter be run as one concern, by the newly organized Milwaukee Dry Dock Company, which has been incorporated for \$413,000. The new company perfected its organization at a meeting held Tuesday night by the election of the following officers: President, Capt. John Fitzgerald; Vice-President, Fred C. Starke; Secretary and Treasurer, William E. Fitzgerald. Directors—Capt. John Fitzgerald, Fred C. Starke, John B. Merrill, A. M. Joys, C. H. Starke, Thomas Davidson and George C. Markham.

These gentlemen are all well known around the lakes. Capt. Fitzgerald has a reputation as a navigator and a ship builder. He has been president of the Milwaukee Shipyard Company since its organization in 1874. Fred C. Starke is one of the owners of the Milwaukee Tug Boat Line. He has done some work in designing hulls and propeller wheels. William E. Fitzgerald is a son of Capt. John Fitzgerald. John B. Merrill is a well known vessel owner and a member of the firm R. P. Fitzgerald & Co., vessel agents. A. M. Joys is a member of the ship chandlery firm of Joys Bros. & Co., formerly G. D. Norris & Co. C. H. Starke is largely interested in dredging and contract work at this port. Thomas Davidson was for many years a partner of Commodore William H. Wolf in the shipbuilding business at this port under the firm name of Wolf & Davidson. G. C. Markham is a marine lawyer of considerable ability.

Fred C. Starke was one of the prime movers in securing the consoli-

dation of the two shipyards. In company with several other local capitalists he purchased the Wolf & Davidson yard last week for about \$250,000. Tuesday night he secured the transfer of the Milwaukee shipyard to the Milwaukee Dry Dock Company, which he and his associates have organized to carry on the business. The owners of the Milwaukee shipyard were paid for this property with stock of the new organization, which has all been subscribed. It is understood that they received in the neighborhood of \$175,000. The business of the two yards will be conducted about the same as before. The Wolf & Davidson yard will be known as the south yard, and will be managed by Fred C. Starke. Wm. E. Fitzgerald will be manager of the Milwaukee yard, which will hereafter be known as the west yard. A general office will be established in the vicinity of the tug office.

One of the improvements promised by the new company is the establishment of an iron and steel plant at the south yard. At first it will be used principally for making repairs on iron or steel steamers which may become disabled in this vicinity, but eventually it will probably be used in the construction of iron or steel steamers.

The dimensions of the dry dock at the Wolf & Davidson yard are as follows: Entire length, 365 feet; length on keel blocks, 355 feet; width on top, 75 feet; width on bottom 50 feet; depth at ordinary stage of water 15 to 16 feet. The yard also has a floating dry-dock capable of accommodating a vessel about 200 feet in length and smaller floating docks suitable for tugs. The yard is supplied with all appliances found in modern shipyards.

The dock secured from the Milwaukee company is of the following dimensions: Length on keel blocks, 311 feet; width on top, 70 feet, width on bottom, 47 feet; depth on mitre sill, at ordinary stage of water, 15 to 16 feet. There is also a floating dock of good dimensions.

The plant of the new company occupies 4½ acres of land in the Menomonee valley, near the Sixth street viaduct.

### Heavy Duluth Grain Movement.

Special Correspondence to the MARINE REVIEW.

DULUTH, Minn., Nov. 3.—The shipments of wheat out of Duluth last week were very large, though not nearly so heavy as they were one or two weeks, in September. During the early part of the week there was very little tonnage here, but in the last three days over 1,400,000 bushels were loaded. The receipts were simply enormous going up to 2,800,000 bushels and beating the last previous record by 547,000 bushels and the previous week by 725,000 bushels. The record for the week as compared with the previous week and the corresponding week last year is as follows:

	Receipts, bu.	Shipments, bu.
Last week.....	2,840,409	1,795,869
Previous week.....	2,115,444	1,374,943
Same week last year .....	559,680	345,847

There is now in store here 3,500,000 bushels of wheat and the receipts will keep up steadily until long after the close of navigation. The demand for tonnage is good and agents do not have much trouble placing boats.

For the month of October the receipts here were 9,152,593 bushels, against 8,191,181 bushels in September and were the greatest on record either here or at Minneapolis. For the two months of this crop year the receipts have been 17,343,784 bushels or about as much as for all of the last crop year. Shipments for the month were 6,489,528 bushels against 6,410,370 bushels in September.

### West Superior Superfluities.

Special Correspondence to the MARINE REVIEW.

WEST SUPERIOR, Wis., Nov. 5.—Of course the chief attraction here is the yard of the American Steel Barge Company. I spent some time in watching the progress of work on one of the two whale-shaped barges under construction, 117 and 118 I think. There has been more or less said about the instability of the barges. This may be true of some features of the model, but it is not true of the material used and the way it is put together. Double butt-strappings and lapping of frames at the turn of the bilge and the tumble home ought to give them strength.

It would not surprise me very much if McDougall would begin to build his own engines pretty soon. He has secured a designer of marine engines who was formerly with the Frontier Iron Works, Detroit, and he is said to be designing an engine that is specially adapted for the barges. And this reminds me that there is an immense plant located at West Duluth, ready to build marine engines as soon as other work under contract is finished. I refer to the Marinette Iron Works. Their new plant is immense and is said to be finely equipped. The superintendent told me that they had contracts for two marine engines to be built during the coming winter.

Capt. Luke Brennan, who has charge of the loading at the Northern Steamship Company's docks here, gives some figures on despatch made so that the handlers of line freight in Chicago may paste it in their hats. The North Wind received 2,350 tons of flour at these docks in 11 hours and 45 minutes, and the Northern Light was given 2,300 tons of flour, 700 tons in sacks, in 14 hours.

BARTON.



## CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,  
No. 210 So. Water Street, CHICAGO, ILL., NOV. 5.

It is very likely that an invitation to the waterways convention to meet in Chicago will be formally extended within a fortnight. The Lake Line Agents' Association met Monday and fully discussed the question. It was felt that if the line agents undertook the task, they would be shouldering a large amount of work, for they could not afford to leave anything undone to make the convention a success. It was decided to appoint a committee to confer with the directory of the board of trade over the invitation. T. T. Morford, Hugh MacMillan and J. C. Evans were named as the committee. It was thought best, in case the convention is invited, that it should be by the board of trade and the Line Agents' Association jointly. The call board room of the board of trade is admirably adapted for the convention and it will doubtless be the place selected. It is an amphitheatre seating 700, with fine acoustic properties. Until the board of trade directory acts, nothing more will be done. If the convention is held here every effort will be put forward to make an historical event in the lake marine.

The Chicago papers have had a good deal to say of late about low water in the river here, but their advice to vesselmen has been to wait until the level of the great lakes rose to a normal stage again. The river is now in sad need of dredging, but the city is "dead broke," and anything that calls for the expenditure of money is not at all relished at the city hall. Capt. William Harmon raises the point that if a big winter fleet is to load grain here this winter there is no place where the boats can lie after they have received their grain. He wants the city to do a lot of dredging in front of docks where buildings have been erected, in order to supply a place for deeply laden craft. The situation by January will be a serious one, unless something has been done. He estimates that the winter fleet will have capacity of 15,000,000 bushels, and says that from the present outlook the boats will all be loaded by midwinter, if there is any place for them to go. For years past the city has only dredged in the middle of the river, requiring dock owners to do their own dredging. Where the docks are not used the sewerage has settled until there is now not over eight feet of water in front of these docks. The owners of the buildings would be glad if there was no water at all, as that would keep the boats away altogether. Whether the city will now step in and dredge out these places at its own expense in order to give berth to grain vessels is in question. It is urged that such a course would be a discrimination against dock owners who are put to great expense for dredging to maintain a sufficient draft of water in front of their property. Something must be done, but what it is, is hard to say.

The wife of A. W. Hall, deputy collector in charge of the marine department of the custom house, died at Norwalk, Ohio, Friday after a long illness. Capt. Hall has the sympathy of a wide circle of friends.

The railroad companies which have bridges across Chicago river have long violated every principle of fairness by using the bridges for switching purposes. The Northern Pacific which has been highhanded in everything it has done, has been the worst offender. Outrageous delays have been experienced at its bridge, between Taylor and Twelfth streets from the day it came into use. The city authorities tried to stop the use of the bridge as a switch yard, but they did not succeed because they used only moral suasion. It now appears that under the last river and harbor act the Secretary of War can put an immediate stop to Northern Pacific tactics of "hogging" everything in sight. Formal complaint against the bridge will be laid before the war department. There is no doubt as to the result.

## Canadian Canal Tolls.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Nov. 5.—The article which appeared in the REVIEW regarding alleged discrimination by the Canadian government in favor of Canadian bottoms has brought forth replies from many prominent newspapers, and resulted in a renewed discussion of the canal tolls question. The Ogdensburg Transit Company, which controls the handling of the grain from the west transhipped at that city, is preparing to push its case against the government when the commission on reciprocal trade relations sits. The rebates on the grain alluded to amounts to \$10,000, and this sum the government has been asked to allow. The Kingston and Montreal Forwarding Company, which has its headquarters here, are specially interested in this matter, as it does a great deal of freighting for the Ogdensburg Transit Company and is therefore in favor of the rebate being allowed. On the other hand the Montreal Transportation Company is moving in another direction. It wants the authorities to build elevators here, and thus make the Canadian route independent of all outside aid, let the emergency be ever so great. The government having taken no action in either case it is surmised that nothing will be done until it be seen what the commission will do.

The timber season was slightly better than was expected. There was considerable old stuff taken forward. The Calvin company sent forward

ten rafts and the Collinsby company six large ones. The woods being well cleaned out a big season is expected in '92.

The old iron steamer Southern Belle, which was a blockade runner during the war, is being broken to pieces at Deseronto.

On Saturday Rathbun & Co. shipped a car load of ashes, glazed, to South Africa. The schooner Hoboken being unable to get anything to do is laid up at Cape Vincent.

The barge Hiawatha, owned here, got on a shoal off Charlotte. One hour after a despatch was sent to Washington permission was received by Calvin & Co. to haul her off. The promptness is the subject of favorable comment.

The water in some lake ports is nearly four feet lower than it was last year, and steamers find it difficult to get to the wharves. The weather is so fine that coal is still being carried east in large quantities.

## Value of the Independent Condenser.

EDITOR MARINE REVIEW:—In recent numbers of the MARINE REVIEW appeared articles from correspondents upon the "Value of Independent Condensers." The writers have evidently endeavored to show these machines to be of small utility. This tendency is only one that always exists in connection with any departure from old methods to those that represent real progress. Old lake engineers well know the repeated attempts that have been made in years past to relieve the main steam engines of attached pumps, and the air pump in particular. That such a thing was greatly needed, went without saying. We have seen the several varieties of independent air pumps including single cylinder steam pumps moved by a small auxiliary steam piston, and air pumps driven by an independent engine—have their trials and have noted their failures.

There is probably no more critical service for pumping machinery than that to be found upon steamships, and engineers were not long in finding out that they could not put their trust in pumps whose steam valves were moved in so uncertain a manner as those on the single pumps referred to. These pumps had a very peculiar and unpleasant way of stopping at the end of the stroke without warning, and of resisting even a quite vigorous application of crow-bar to start them.

The independent vertical air pumps driven by a separate engine seemed to possess desirable features, but when we found that they simply multiplied the things to take care of, we were really worse off than we were before. The small engine had its own little connecting rod, crank, pin, pillow blocks, cross-heads, eccentrics, bell crank, etc. and they all had to have about as much attention as the similar parts on the larger engine.

It is certain that engineers have looked upon the advent of the duplex direct acting independent condenser as a step of great importance. Its use eliminates the above objectionable features. We all know the simplicity of the duplex steam pump with a common D slide valve—nothing to adjust, no crank pins to get hot, no cross-heads to be adjusted, and, in fact, none of the little matters that pertain to rotative engines that are a continual source of trouble and anxiety to the engineer who already has quite enough to attend to.

Then again, there is a feature which in my mind solves finally the whole problem of air pump practice. In the duplex pump we have the feature of one pump pausing at the end of its stroke, awaiting the movement of its steam valve by the other pump. This absolute stop is the thing that is entirely wanting in all other kinds of air pumps, and it is of extreme value. The valves are enabled at this time to come to their seats by the pressure of the spring alone and are not slammed suddenly by the change in the motion of the pump. The result of this is apparent to every practical man. I am informed that several Worthington condensers that are of the duplex type on lake steamers, and that have been in use four or five years, have not even changed or renewed the air pump valves. This is certainly a remarkable result.

The relief to the engineer in his not being obliged to handle the injection valve on going into port is particularly noticeable, and not long ago an engineer of one of the "liners" told me that his "engine was as easy to handle as a tug-boat engine." As the condenser pump is always started first and a vacuum produced in the low pressure cylinder of the main engine, this simple opening of the main throttle causes the engine to respond at once, and no time is lost in "working her" to form a vacuum after being shut down for a short time. The old time danger of flooding the condenser is, of course, entirely done away with. The condenser runs along whether the engine is "full head," or stopped, or "backing hard."

The piers and slips at our lake ports were built for much smaller vessels than are now plowing the waters of the Great Lakes. The rivers, also, filled as they are with steam craft of all kinds and almost without number, have sharp turns and narrow channels, and in their navigation the immediate response of the engine to the bells is of incalculable value and importance, and it seems to me that the value of the independent condenser in this one respect alone, if it had no other advantages, should demand for it a position on all our large carriers.

ROSS.



## Record of Speed and Big Cargoes.

[Masters or owners are invited to report improvement on this list.]

Iron ore: Lake Michigan—Maryland, Inter-Ocean Transportation Company, of Milwaukee, 3,322 gross, or 3,737 net tons, Escanaba to South Chicago, draft 16 feet 6 inches; E. C. Pope, Eddy Bros. of Bay City, 3,239 gross, or 3,628 net tons, Escanaba to Buffalo, draft 16 feet. Lake Superior—E. C. Pope, Eddy Bros. of Bay City, 2,828 gross, or 3,167 net tons, Ashland to Lake Erie, draft 14 feet 6 inches.

Grain: E. C. Pope, Eddy Bros. of Bay City, 125,730 bushels of corn, draft 14 feet 8 inches; Western Reserve, Peter Minch, of Cleveland, 112,431 bushels of wheat, Chicago to Buffalo; W. H. Gilcher, J. C. Gilchrist, of Cleveland, 114,982 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line, of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line, of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

## Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St.

Stocks.	Par Value.	Bid.	Asked
Cleveland-Cliffs Iron Company.....	\$100 00	\$.....	\$ 82 50
Champion Iron Company.....	25 00	.....	77 50
Chandler Iron Company.....	25 00	38 50	40 00
Chicago and Minnesota Ore Company.....	100 00	.....	100 00
Jackson Iron Company.....	25 00	.....	110 00
Lake Superior Iron Company.....	25 00	60 00	.....
Minnesota Iron Company.....	100 00	80 00	83 00
Pittsburg Lake Angeline Iron Co.....	25 00	.....	145 00
Republic Iron Company.....	25 00	25 00	27 00
Ashland .....	25 00	.....	.....
Section Thirty-three.....	25 00	.....	.....
Brotherton.....	25 00	2 00	2 50

Mr. M. A. Bradley of Cleveland, who is interested in some of the undeveloped iron properties of the Vermillion and Mesaba ranges, Minnesota, says that the plan of the Meritts and others who have been working in that territory is to build docks and terminal equipment at Superior, Wis., in connection with the Duluth & Winnipeg and Duluth, Mesaba & Northern railway projects. The plans of these railway companies seem to be well defined and there is no doubt of the existence of good ore in great quantities in the new Minnesota territory, about which a great deal has been said of late, so that it is reasonable to expect that toward the close of next season Lake Superior will have another ore shipping port. Prices of mining stocks have shown some improvement of late, probably due to the better prospects for next season's business. Values have not, however, reached figures at which owners of stocks are willing to trade and the market is not very active. Some ore has been sold recently for delivery during the winter but there is nothing of interest in the prices secured for it.

Shipments of the Gogebic range mines from Ashland on Oct. 28 (these mines are also shipping from Escanaba and by rail) were as follows: Ashland 233,842 tons, Aurora 79,410, Tilden, No. 2, 5,221, Tilden 23,194, Montreal, south vein 56,133, Palms 32,237, Section 33, Bessemer, 36,738, Carey 92,963, Trezona 15,759, Germania 22,382, Iron Belt 1,506, Mount Hope 95,231, Norrie 239,366, East Norrie 108,994, Comet 8,050, Federal 929, Eureka 12,752, Pabst 83,061, Ruby 913, Sunday Lake 54,419, total 1,203,679 tons. On the same date the Ludington mine had shipped from Gladstone 119,746 tons and the Hamilton 53,158 tons. The output of the Vermillion range, also computed to the 21st inst., included 466,104 tons from the Minnesota mine, and 343,085 tons from the Chandler.

At the Foxdale, a property near Humboldt, Mich., being worked by Ishpeming parties, the drill cut through 60 feet of ore recently, and the shaft that has since been sunk reached the deposit much sooner than was expected. The ore is said to be identical in appearance with the best Republic Bessemer, and it is thought that a good mine has been found.

A heavy flow of water in one of the shafts of the Hamilton mine, which had gone down to 1,435 feet, has forced a suspension of work in the shaft for the present season.

The Badger, new mine of the Commonwealth company, is said to have sold 35,000 tons of ore for delivery by rail during the coming winter.

All manner of work in and around the Fitch mine is at a stand-still and there is no telling when operations will be resumed.

## Flash Light at Whitefish.

A short time ago Capt. J. D. Peterson of the steamer J. C. Lockwood suggested that the light at Whitefish point, Lake Superior, above the Sault, be changed from a fixed to a flash light. In a letter regarding the change Capt. Peterson said: "Many of our modern steamers now have electric masthead lights and in meeting these steamers near Whitefish it is sometimes hard to distinguish one from the other. And again in snow squalls, or any hazy weather, it is very important that the master should be able to distinguish the light the moment he sees it. As it is now it is sometimes hard to do this."

Before this suggestion had been made the light-house board had recognized the importance of such a change, and Capt. Peterson, as well as other masters in the Lake Superior trade, will undoubtedly be pleased to learn that the board has authorized putting a red flash in the structure at Whitefish. Due notice of the change will be given by the board, probably before the close of navigation this season.

## In General.

A correspondent in the American Shipbuilder produces some very forcible arguments in the way of proving that collisions are due in many cases to leaky pistons, which cause a failure of a steamer's engine to respond promptly to the action of the steam when an order is given to suddenly stop or reverse.

English exchanges continue reporting favorable results obtained from the Serve ribbed boiler tubes, which have been adopted for all ordinary boilers of the French navy and which have made a very important showing in trials by the Inman Cunard and other big steamship companies. With the Serve tube the opportunity afforded of considerably increasing the boiler power without any increase in the size of the boiler or the consumption of fuel is a great point in its favor.

George S. Weaver of Keuka lake, Bancroft, N. Y., tells the Scientific American of the performance of a small steamboat which he has been using for pleasure purposes on the lake. The boat is 65 feet long and has a six-cylinder engine made by the Colt Patent Fire-arms Company, of Hartford, Conn. Each cylinder is 7 inches in diameter and the stroke is 6 inches, driving a 44-inch wheel with 6 feet pitch at 220 revolutions. The boat is unusually heavy for her size but makes 15 miles an hour with fifty passengers aboard. The owner claims to have run her ten seasons without an accident or a dollar's worth of expense to the machinery, save the breaking of a crank pin during the first season.

In connection with the announcement of work being begun on the Clyde for the two new Cunard steamers, Andrew Carnegie said in London a few days ago that before these boats have fairly got their speed the Inman line will be out with two fast boats, built on the Delaware river. He says the Inman company wants to make its line entirely American and will require very little encouragement from the United States government to do so. The Cunard boats will have engines of 14,000 horse power, duplicates of those in the Etruria, guaranteed to give a sustained speed of 21 knots an hour in open sea and 22½ measured miles on the trial trip. Much greater speed would be obtained from the boats if their owners did not want them to carry about 700 cabin passengers and at least 2,000 tons of freight.

The armour-plate bending rolls constructed by the Niles Tool Works, at Hamilton, Ohio, for the United States navy yard at Mare island, will bend armour plate 2 inches thick by 22 feet long. It has four wrought-iron forged rolls 22 feet 6 inches in length between journals, supported in two housings of massive proportions. Two of these rolls are placed in the center of these housings, one vertically above the other. They are 32 inches in diameter, and are used to pinch the plate and carry it through. The other two rolls are placed one on each side of the center rolls. They are used to bend the plate, and are 25½ inches in diameter, and move in guides in the roll housings, inclined at 20 degrees from the vertical. The adjusting screws for these rolls are 7 inches in diameter, and driven by tangent gearings. The three movable rolls are raised and lowered by power, furnished by a pair of vertical reversible engines with link motion, provided for this purpose only, having cylinders 10 inches in diameter, and stroke of 12 inches. A board consisting of Naval Constructor Hichborn and Chief Engineer Inch, U. S. N. tested the rolls at the works.



# MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, . . . . . } PROPRIETORS.  
F. M. BARTON, . . . . . }

HOMER J. CARR, . . . . . Associate Editor and Manager Chicago Office,  
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SUBSCRIPTION—\$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels .....	1,527	652,922.25
Sailing vessels.....	1,272	328,655.96
Canal boats.....	657	67,574.90
Barges.....	54	13,910.09
Total.....	3,510	1,063,063.90

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886.....	85	20,400.54
1887.....	152	56,488.32
1888.....	222	101,102.87
1889.....	225	107,080.30
1890.....	218	108,515.00
Total.....	902	393,597.03

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

*Tonnage passing through Detroit river during 234 days of navigation in 1889, amounted to 36,203,606 tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.*

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Entered at Cleveland Post Office as Second-class Mail Matter.

THE Toronto Empire, government organ of Canada, the Kingston News and other leading newspapers of the Dominion have finally taken up the question of Welland canal tolls. The Kingston News says:

"We have been favored with a marked copy of the MARINE REVIEW, published at Cleveland, Ohio, in which the marine regulations of Canada are violently denounced as discriminating against American vessels. The MARINE REVIEW either is talking without knowledge or is dominated entirely by national animosity. What the REVIEW bases its denunciation of the Canadian government on, is of course, the fact that a rebate of Welland canal tolls is allowed on cargoes going through to Montreal, while cargoes bound to American lake ports are not given this privilege. But this is not discriminating against American vessels. American vessels are placed on exactly the same footing as Canadians, if they carry to Montreal. If the Americans desire more, let them first abolish their coasting regulations, to which the Welland canal regulations are but an equipoise."

This is a fair sample of the Canadian newspaper defense of the system of canal tolls and rebates that discriminate against citizens of the United States. The claim is not that these tolls and rebates discriminate directly against American vessels, although there is discrimination even in that regard to the extent that commodities going to American ports, upon which heavy tolls are collected as against light charges on similar freight going to Canadian ports, would be carried in American vessels. But there can be no doubt that the system places an extra canal charge on grain,

coal and other articles bound to American ports, while there is no such charge on freight passing through the St. Clair canal and bound to Canadian ports. According to the treaty of 1871, brought up at this time on account of the discrimination in the Welland canal, Canada secures to the United States through the British government the use of the Welland, St. Lawrence and other canals of the Dominion on terms of equality with the inhabitants of the Dominion, in return for the use of the St. Clair Flats canal on similar terms. If there is no direct treaty violation in this system, then justice to American interests demands that on grain bound for Montreal, the same tolls should be exacted at the St. Clair Flats canal that are now exacted at the Welland canal on grain destined for ports in the United States. Surely there could be no complaint from the Dominion on this account, as it would be simply following at the St. Clair canal the present sharp practice in the Welland system. The people of the Dominion will find that neither the REVIEW nor the vessel interests of the lakes are talking without knowledge of the situation. Coasting regulations have nothing whatever to do with a matter of simple agreement between the two countries as to use of the canals. If the Dominion has but a meagre trade within its own lake ports the fault is not with the United States.

The Toronto Empire, government organ, which has evidently seen but one of a number of articles in the REVIEW on this subject of late says among other things:

"The REVIEW justly ranks as an authority on marine subjects, and is tolerably free from political bias in discussion. It is to be regretted that so influential a journal should present but a partial statement of a question which is of considerable importance to both countries. Let it be admitted that the order in council for the current year operates virtually as a bonus to the port of Montreal, and discriminates against American ports; yet surely to construe such a policy into proof of ill-will against the United States and lack of desire to promote reciprocal trade, must be strange logic."

Outside of the claim that the disposition of the Canadian people is wrongfully stated when it is said that they are insincere in the whole matter of reciprocal relations between the two countries there is nothing in the article from the Empire that has not been fully answered.

It is to be hoped that Chicago's Canal street bridge question, which is finally to be put to a test in the federal courts, will not be delayed for an indefinite period, as would seem to be the case with the proceedings to dispossess the Delaware, Lackawanna and Western Railway from its occupancy of the north pier at Buffalo. The latest report regarding the Buffalo pier question is to the effect that the war department is awaiting a statement of some kind from the district attorney. It is a long time coming.

C. H. Cramp of the famous Philadelphia shipbuilding firm gives some idea of what it costs to increase speed. "The average rate now," he says, "of ocean liners is about 19 knots. It requires 20,000 horse power to propel a vessel of 5,000 tons 19 knots an hour. To increase the speed to 22 knots would require 36,500 horse power, roughly speaking. Three knots an hour is only 72 miles a day."

Ship-owners and captains will be interested to learn that at the Detroit Boat Works, Detroit Mich., yawls of all sizes, from 14 to 22 feet in length, are constantly kept in stock and delivered to vessels while passing through the river, or at their dock, day or night.

Now it is said that the British ship of war Detroit, sunk in Lake Erie during the war of 1812, will be raised and exhibited at the World's Columbian Exposition. There is evidently no more truth in this story than there was in a similar report about Commodore Perry's flag-ship, sunk near Erie. Reminders of victories over Great Britain would hardly be appropriate in the great exposition, and it is not probable that the management will permit of anything of the kind being shown.



### Around the Lakes.

The wrecking tug Favorite will be stationed at Cheboygan the balance of the season.

Saginaw bay lumber rates are higher on the basis of \$2 from Bay City to Buffalo and Tonawanda and \$1.75 to Cleveland.

If you want any blacksmith work done while in Cleveland take it to the Continental Machine Co., Elm and Center streets.

Lake coal shipments from Buffalo, to Oct. 1 aggregate 2,043,050 tons against 1,790,870 tons last year. The heaviest shipments on record (1880) were 2,244,800 tons.

The propeller J. C. Langdon, of the Ogdensburg line, was the first boat to be placed in the new Dunford & Alverson dock at Port Huron. She received some new bottom planking and new buckets on her wheel.

A transfer of land for the McDougall dry-dock at West Superior, about which so much has been said, was made Tuesday. It is said that the dock will be 500 feet long and will be ready for service towards the close of next season.

Michigan City parties are talking of building a passenger steamer at a cost of about \$100,000 to run next season between Michigan City and Chicago. The steamers Glenn and Chief Justice Waite at present on the route do not give satisfaction.

Buffalo underwriters figure that the marine insurance losses during September and October foot up about \$465,000 of which 30 per cent. was on risks held by the foreigners. Losses not covered by insurance would increase the aggregate to about \$600,000.

At Hamilton, Ont., Capt. J. B. Fairgrieve has made arrangements to build a steel steamer, to carry about 1,200 tons and cost \$60,000. She will be used for general freighting purposes between Montreal and Lake Superior. The Hamilton Bridge & Tool Company will furnish material for the boat.

Mr. S. Canfield of Toledo and others connected with the Star-Cole line of steamers are negotiating for the purchase of the steamer Sylvan Stream, a boat built in New York. The boat was in service on Lake Ontario during the past season, and is said to be capable of making 16 miles an hour on a run of 160 miles. She is worth about \$25,000.

Mr. Geo. A. Simpson of Simpson & Morrison will leave for the east this week, but any work sent to 161 River street, Cleveland, will be carefully attended to and returned in short time. He will return early in the spring to adjust compasses on most all of the new steamers building. Mr. Simpson's work has been so satisfactory that he does all the compass adjusting for a number of the largest fleets on the lakes.

Seventy-six hours and twenty minutes from Buffalo, to Duluth 997 miles, or an average of a trifle over 13 miles an hour, is the time of the steamer Pope on her last trip up. It is claimed that the boat can do better than this, and she probably can but the performance is highly creditable in itself when the difficulties of the Detroit, St. Clair and St. Mary's rivers are taken into consideration.

Lake grain receipts, at Buffalo, exclusive of flaxseed to Oct. 1 were 100,603,870 bushels, 23,300,000 bushels larger than last year and 6,600,000 bushels larger than 1880, which till now has held the record. Canal shipments thus far are 30,200,500 bushels, much smaller than in any recent season. Rail shipments of grain foot up 59,181,100 bushels the largest on record, and 16,500,000 bushels over last year.

The November supplement, No. 6, to the Inland Lloyds Register, contains only one new boat, the propeller Edward Buckley, built by Burger & Burger of Manitowoc, owned by G. Gnewuch of Manistee and valued at \$35,000. The propeller J. H. Pauly of Whitehall is raised in valuation from \$7,000 to \$10,000 but remains A2½. The schooner Hartford has changed owners, having been sold by W. H. Consaul of Clayton to G. H. McKinley and others of that port. The barge Mariner is withdrawn.

Retail lumber dealers at Manitowoc are complaining because the captain of a Lake Michigan steamer has made a fair profit during the past season by buying lumber at wholesale figures in Menominee and selling it from his vessel in Manitowoc at retail prices that made up the freight. The Manitowoc retailers of lumber say they should be protected by the manufacturers against this kind of competition, but it is probable that the captain of the vessel if refused lumber at Menominee would find

it elsewhere. His plan of bridging over dull times in the carrying trade shows enterprise.

Mr. J. W. Tomson, writing to the Port Huron News says the following: "Away back in the 30's, now some 60 years since, there was built at Glasgow, Scotland, on the Clyde, what us boys then called a cigar boat. Two cigars built of boiler iron, each eight or ten feet in diameter and 40 or 50 feet long, were placed 15 or 20 feet apart. The paddle wheel, operated by a small engine, was between the cigars. A rudder was on the end of each cigar. A nice cabin, about two-thirds of the boat, was built on top and rested on the cigars, and the ship was ready. An excursion down the Clyde was to inaugurate the coming change in naval architecture. There was a crowd and the ship sailed. She rocked like a cradle, and as the terrified passengers could not be kept quiet notwithstanding her breadth of beam she came near turning over. Every one was glad to get away from this her first and last trip. Hers was a premature birth. She should have waited for Pierce or Mac. She lay idly for a year or two immediately below the Glasgow bridge at the very head of Clyde and ocean navigation and she was finally broken up."

### Wrecks and Heavy Losses.

Another boat, the steamer Passaic, has been added to the list of Lake Erie losses for the present season. She stranded off Dunkirk and is a total wreck. The Passaic was owned by Capt. Blodgett and others of Detroit. She was valued at \$12,000. Two other Lake Erie wrecks, the schooners Sawyer and Stewart, are still on the beach, the former at Avon point and the latter near Fairport. Capt. C. E. Benham refused to superintend wrecking operations on the Sawyer, on account of insufficient wrecking facilities furnished by the underwriters. The schooner Bavaria, a canal ashore near Goderich, Ont., will prove a total loss. She was owned by Capt. Fraser of Sarnia.

### Cellulose in Ship Building.

In the construction of naval vessels in Italy, Denmark, France and England, a lining of cellulose is used as a protection from sinking. The United States now proposes to use this lining between the outer shell of iron and the inner shell of wood in the four vessels building by the Cramps, and a company has been organized in Philadelphia to manufacture the article under a control in this country of the French patent. Cellulose is manufactured from the fibres of cocoanut husks, and has the property of absorbing eight times its weight of water. Its great utility in shipbuilding was discovered by a French naval officer, whose crew were firing at a target made of moistened cocoanut husks. When the marksmen examined their target they found that every perforation made by the bullets had closed, and this with so great rapidity that not the slightest scar could be found.

### Advertising That Pays.

Wm. Rymer, Detroit, patentee of a whistle operating device, writes concerning his advertisement in the REVIEW, saying that it brought an order in less than a week from one of the largest transportation companies.

"You may continue our advertisement six months from date of expiration."

MONTAGUE IRON WORKS.

"Continue our card another year at same rate as agreed."

SHERIFFS MFG. CO.

Concerning an increase of space, S. F. Hodge & Co., Detroit, says: "Your suggestion is a very good one. Will you therefore get up an ad. in that shape and insert in place of our old one."

The two ships building at the Harlan & Hollingsworth Company for the Providence and Stonington Steamship Company, are to have the patent steam capstan windlasses, made by the American Ship Windlass Company, Providence, R. I. All the ships of this line, without exception, have the same make of windlasses and in fact about every American steamship company have the same. It is a fact apparent to most steamship owners that when contracting for a ship, if the specifications call for the best kind of windlasses and capstans, they cost no more than if the question is left open, with a chance of getting inferior machines. It is a good point for steamship owners to consider, when making their contracts, that it is as easy to get the best as to get an inferior kind and without any additional expense.—Marine Journal.



### Proposed Maritime Department of the Government.

The treasury department has again taken up the matter of dealing with the recommendations of the United States delegates to the International Marine Conference, most important of which are the propositions to combine in one board the several bureaus now charged with the execution of duties relating to the merchant marine and to revise the present inspection laws so as to include the inspection of sailing vessels. Congress will undoubtedly take up this subject in an earnest manner during the coming winter. The Lake Carriers' and Cleveland Vessel Owners' associations have been asked by L. G. Shepard, chairman of the board appointed to consider this matter, to submit in writing the views of lake vessel interests on the subject and attention will undoubtedly be given to it at the general meetings that will follow the close of navigation.

The United States delegates recommended that laws be enacted governing the following:

Regulations to determine the seaworthiness of vessels.

Revision of the present inspection laws, and enactment of laws for inspection of sailing vessels.

Uniform regulations regarding the designation and marking of vessels.

Saving life and property from shipwreck.

Necessary qualifications for officers and seamen including tests for sight and color blindness.

Reporting, marking and removing dangerous wrecks or obstructions to navigation.

The report says of these recommendations:

1. Absence of proper laws requiring governmental supervision of the great maritime interests represented in the sailing fleet of the country—while the laws regarding the government inspection of steam vessels may be assumed to insure upon them the necessary security of life and property at sea so far as the strength of the vessels, proper equipment, etc., are concerned, no such provisions exist by law with regard to sailing vessels. A totally unseaworthy sailing vessel may put to sea at the risk of all lives and property on board; furthermore she may be overladen and utterly deficient in the necessary equipment for the safety of her crew and passengers in case of accident, such as boats, life-rafts, life-preservers, pumps, etc., or fire-extinguishing apparatus. There is, moreover, no legal requirement as to the qualifications of officers of sailing vessels, and no certificate of qualification is required by law of such officers. If the owners or insurers do not require some evidence of competency, any man may obtain command of a sailing vessel, however unfit he may be for the position. This condition of things exists notwithstanding the fact that the number of sailing vessels belonging to the United States is nearly three times as great as the number of steamers, and the tonnage of sailing craft exceeds that of steamers by more than 300,000 tons. The number of casualties occurring to sailing vessels during the year 1888—the last for which statistics of disasters have been reported—was twice as great as those occurring to steamers, and the number of lives lost on board sailing vessels was three times as many as those lost on board steamers, although the great majority of passengers are carried on board steamers.

2. The delegates are of the opinion that the methods now pursued for ascertaining the qualifications of officers of steam vessels can be improved, and a higher standard of competency thus secured.

3. Upon many of the important points submitted to the conference for consideration no international agreement was reached, and this was in many instances due to the fact that the more important maritime nations were already provided with satisfactory laws and rules upon these points; and while there is considerable diversity in these rules among the different nations, no nation was willing to abandon a satisfactory system for the sole purpose of securing uniformity. Principal among these points were the questions of construction and equipment of vessels, qualifications of officers of vessels, and those relating to buoyage—matters in regard to which, except as to buoyage, the United States are far behind other powers. It was the judgment of the conference that the desired end in each case would be best attained by the independent action of each nation. It is, there-

fore, the opinion of the United States delegates that the maritime interests of the country could be best subserved, and life and property at sea best protected, by combining in one board as above recommended the several bureaus now charged with the execution of duties relating to the maritime affairs, to which should be added experts selected from the important commercial sections of the country. This would secure unity of action and efficient results in the most economical manner and without loss of energy resulting from separate effort by different bureaus upon the same matters, or the total neglect of other important ones, not now assigned to any special charge. The duties required of these several officers under existing laws could still be administered by them and their present corps of assistants, while the different sections of the country interested would be properly represented. The United States delegates would further respectfully suggest in submitting this report that the large and growing interests of our merchant marine render it desirable that they should be looked after by a separate department of the government. The administration of the laws regarding the commerce of the nation, afloat and ashore, and the development of other legislation already demanded, together with that which the growing importance of our national commerce will soon render necessary, will require the best energies of a separate department, of which the board above recommended would constitute an important part.

### Numbers Instead of Time Flashes.

The new system of light-house signals gotten up by Capt. Mahan, engineer secretary of the light-house board, proposes the assignment of a number to each light in the country, this number being given by groups of flashes. The system is outlined in the following extract from a report upon the subject submitted by Capt. Mahan to the secretary of the treasury: "It has been admitted for a long time in these days of many ships and much travel, that all lighthouse lights should have such distinguishing characteristic as to make it impossible for any mariner suddenly coming to a light to be uncertain whether it belongs to the light-house establishment or not, or to mistake one light of the establishment for another. With the swift steamers and great competition of the present time, when vessels are driven almost as fast in fogs as in clear weather a vessel may easily find herself several miles out of the way. If, under these circumstances, a light should be made out unexpectedly, the mariner should be able to tell at once whether it be a light of the light-house establishment, and if it be so, he should have the means of knowing immediately what light it is. Many officers with whom I have talked tell me that the system of time intervals between flashes is unsatisfactory on account of the difficulty of accurately timing these intervals when the ship is rolling or pitching heavily. Atmospheric influences, the nature of which is unknown, cause apparent variations in the intervals by making them seem sometimes greater and again smaller. In a word, the present system, founded on time intervals, is not wholly satisfactory. In its place is proposed a system of numeral characteristics, or the assignment of a number to each light, this number being given by groups or flashes. Being a system founded on well defined principles, no change need be made after it is once adopted, but a discussion of the plan is invited by the light-house board, with the request that it be carefully examined, both as to its merits and defects, and that opinions on both points be given."

CHICAGO AND RETURN, \$6.00.—Patriarchs Militant, I. O. O. F., Cleveland Canton, No. 33, will run an excursion to Chicago via the Nickel Plate, Monday, Nov. 16. Train leaves 6:30 a. m., giving seven days to visit the city of the World's Fair. Nickel Plate excursion to Chicago, Nov. 16. Tickets good seven days. \$6.00 round trip.

TO SHIP-BUILDERS.—OFFICE OF THE Light-House Board, Washington, D. C., November 2, 1891. Proposals will be received at this office until 2 o'clock P. M., of Tuesday, the 24th day of November, 1891, for furnishing the materials and labor of all kinds necessary to construct and deliver the United States light-house tender MAPLE. Plans, specifications, forms of proposal, and other information may be obtained on application to this office. The right is reserved to reject any or all bids, and to waive any defects. JAMES A. GREER, Commodore, U. S. Navy, Chairman.



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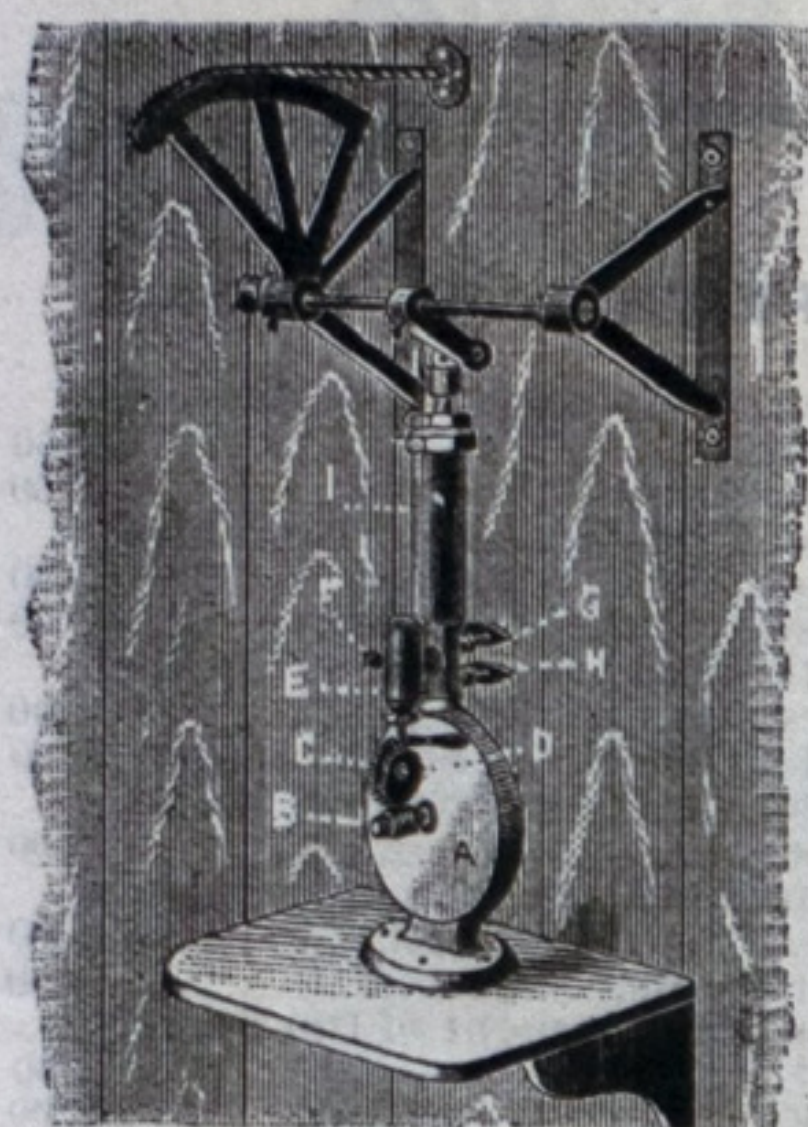
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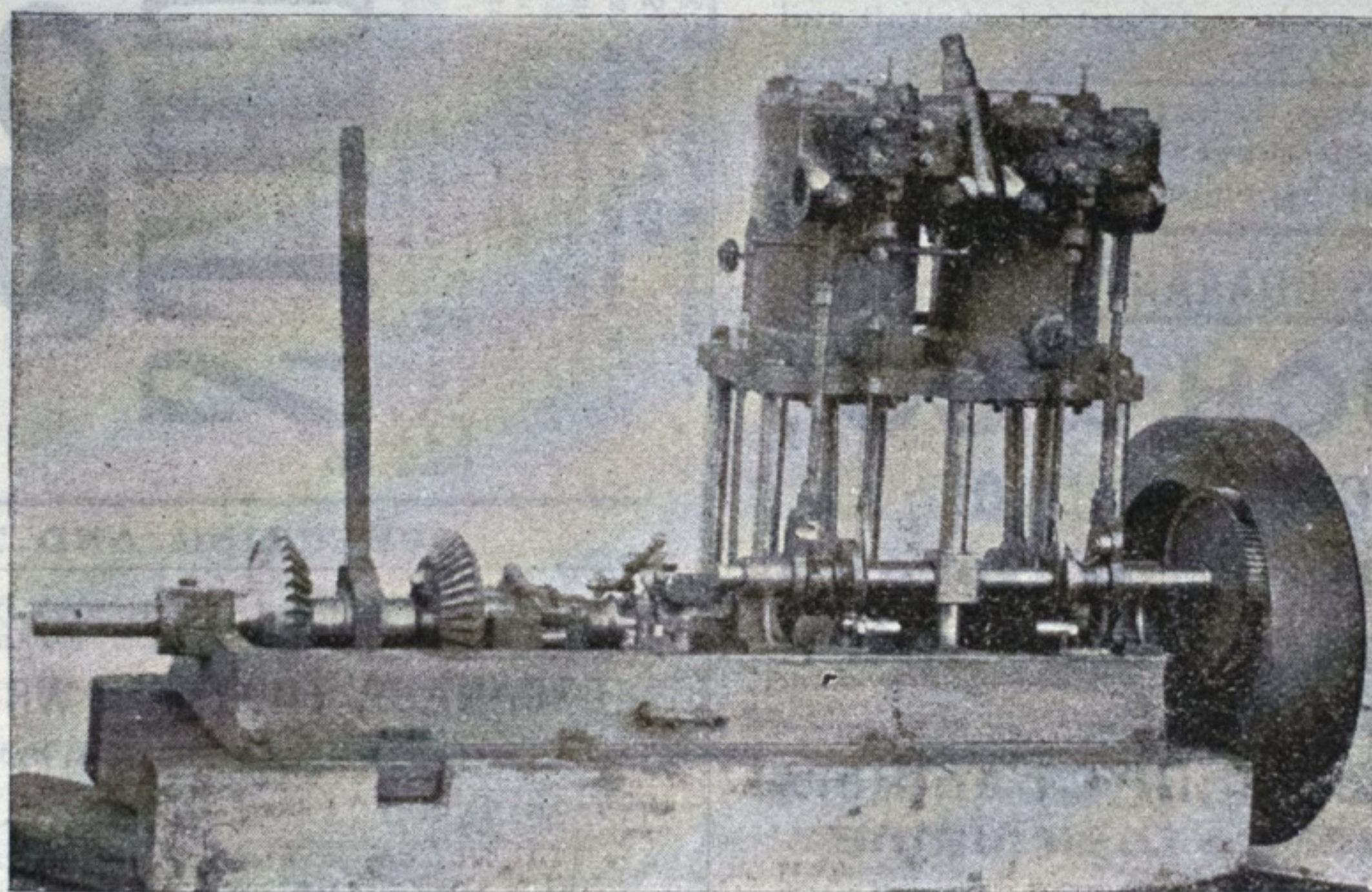
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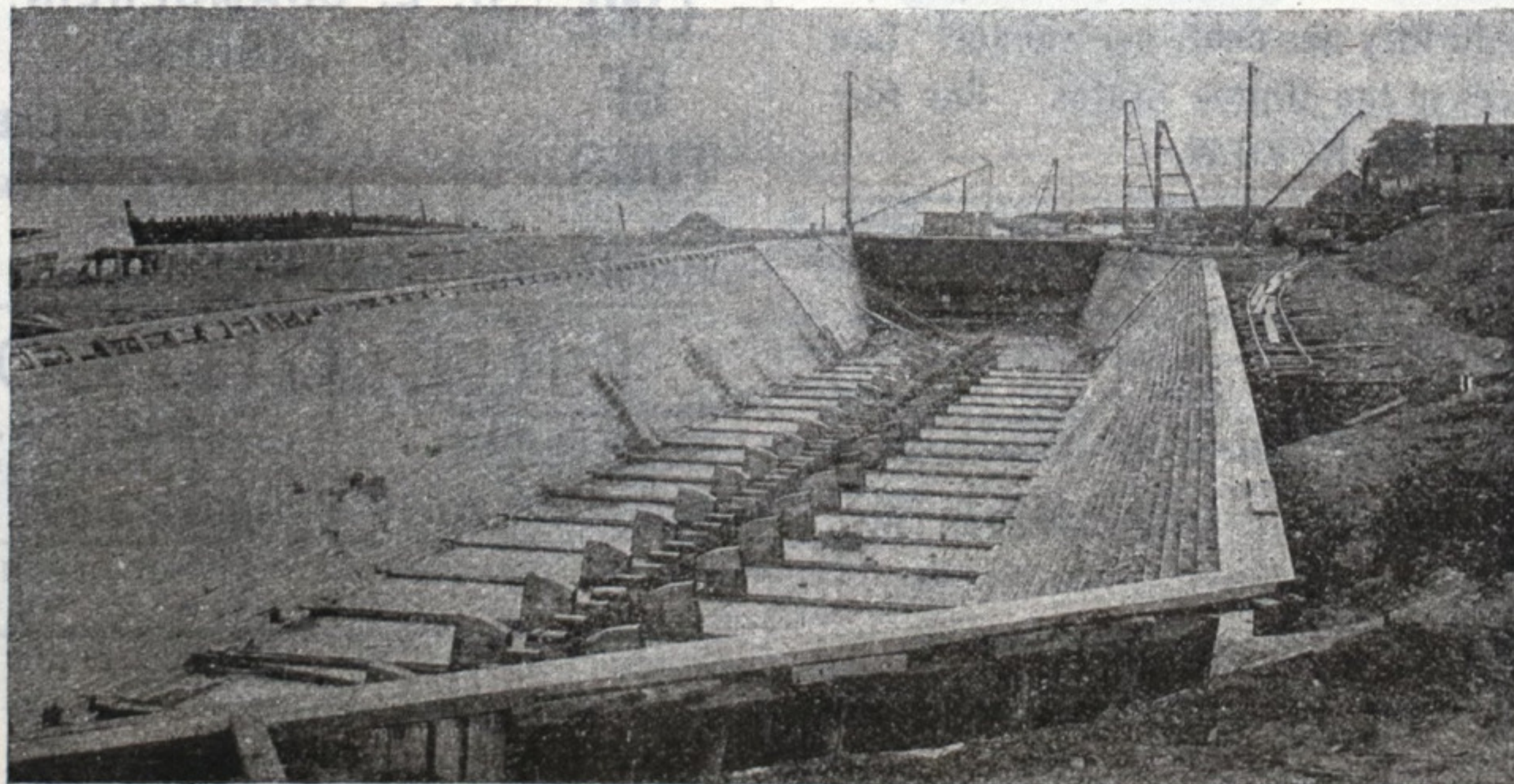
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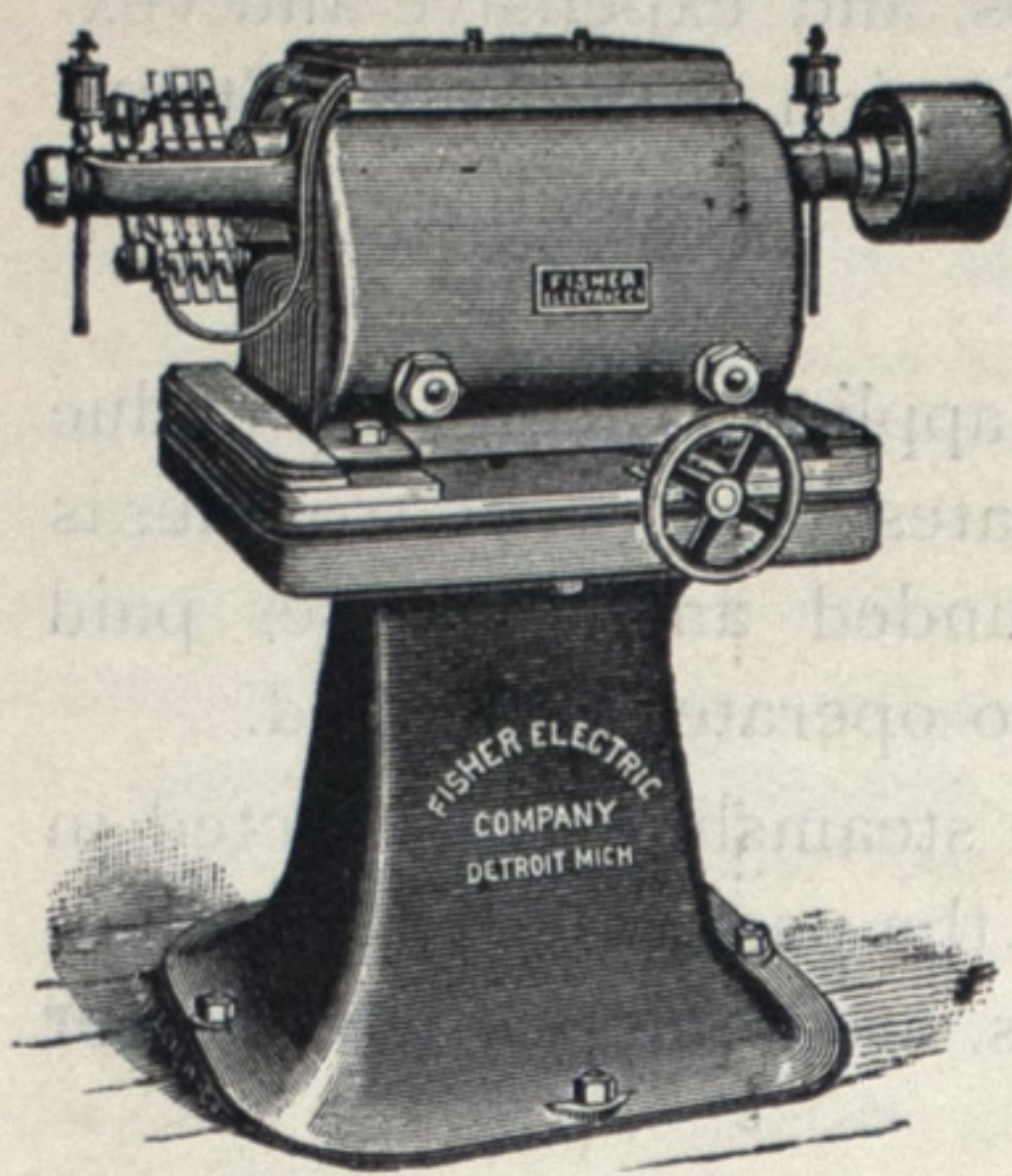
Length: 400 feet.

Width: { on top 95 feet.  
bottom 55 "  
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Depth: { to floor 20 feet.  
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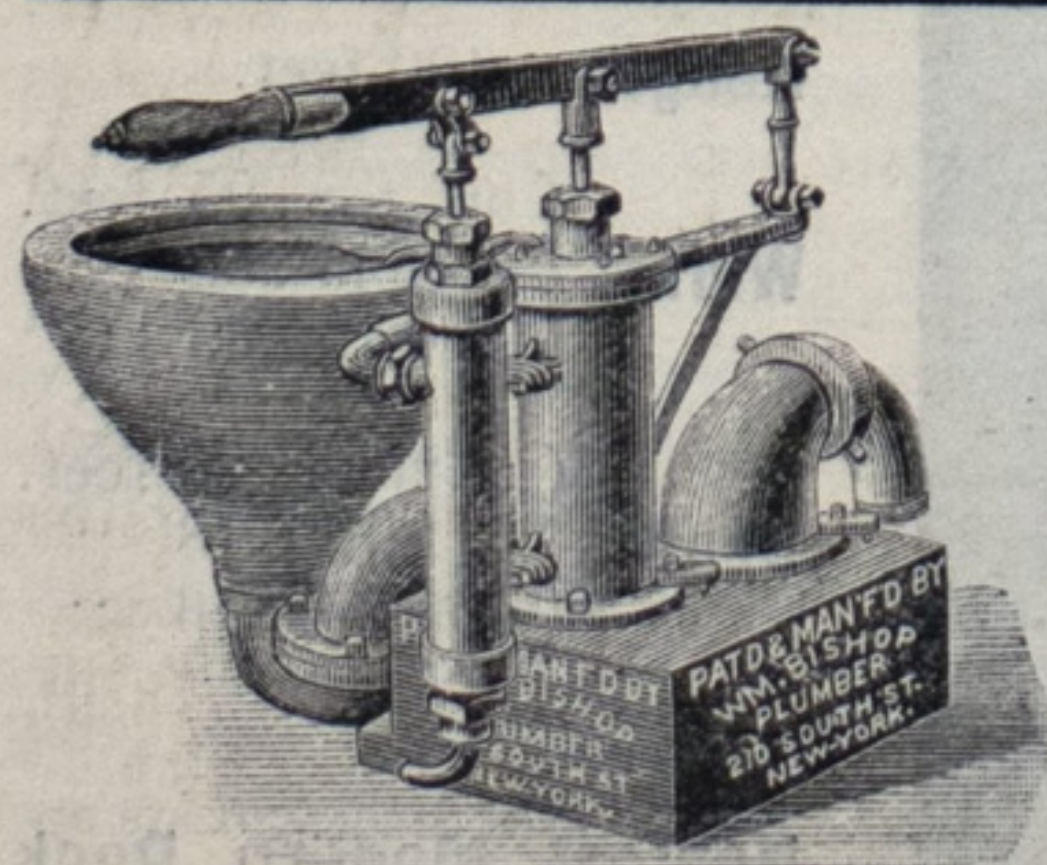
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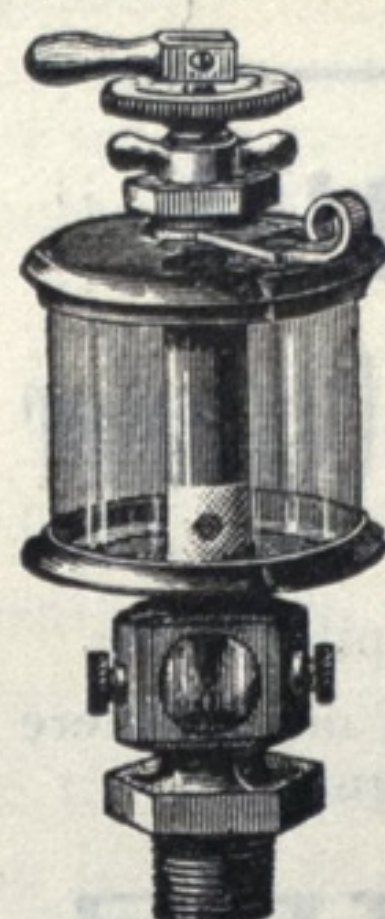
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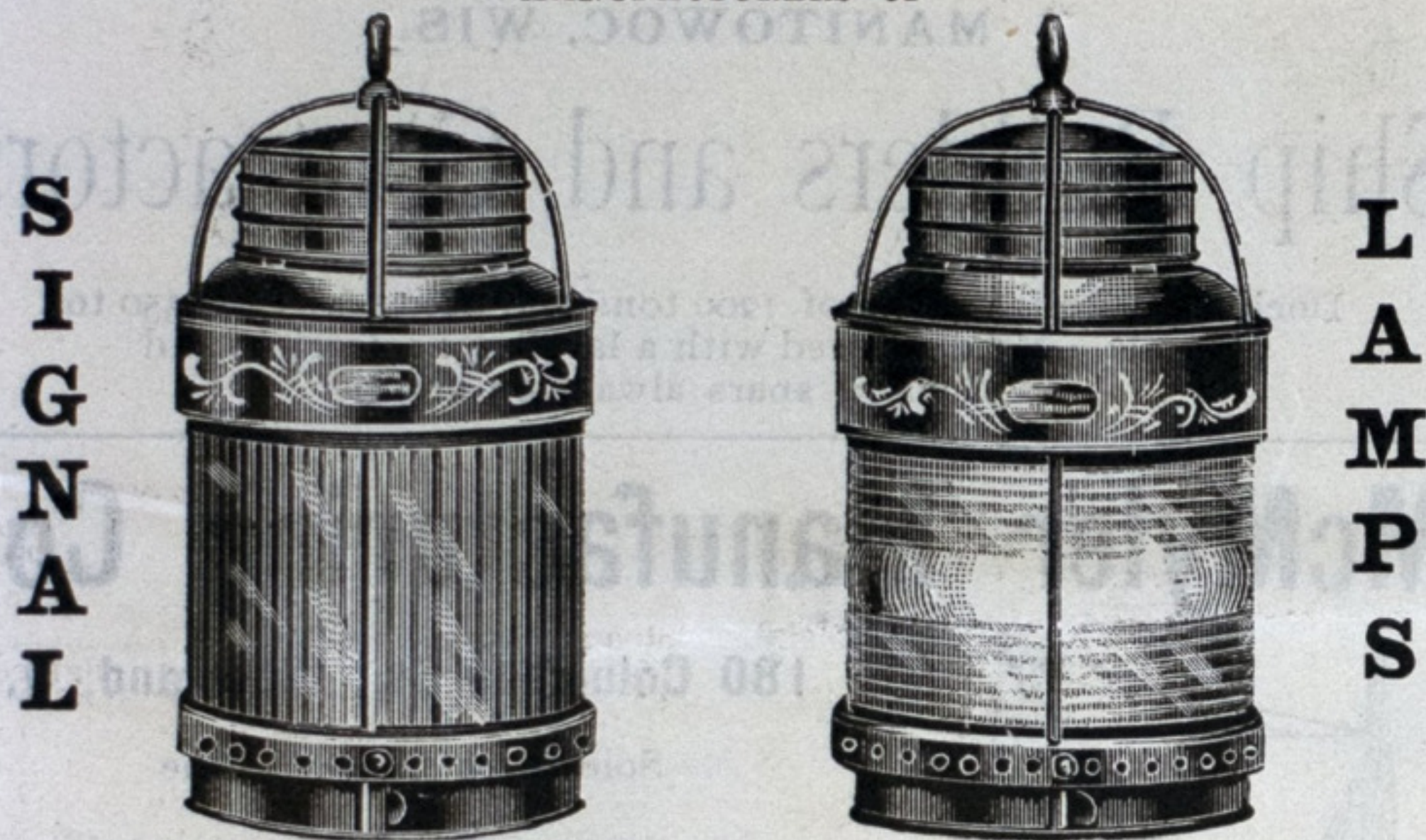
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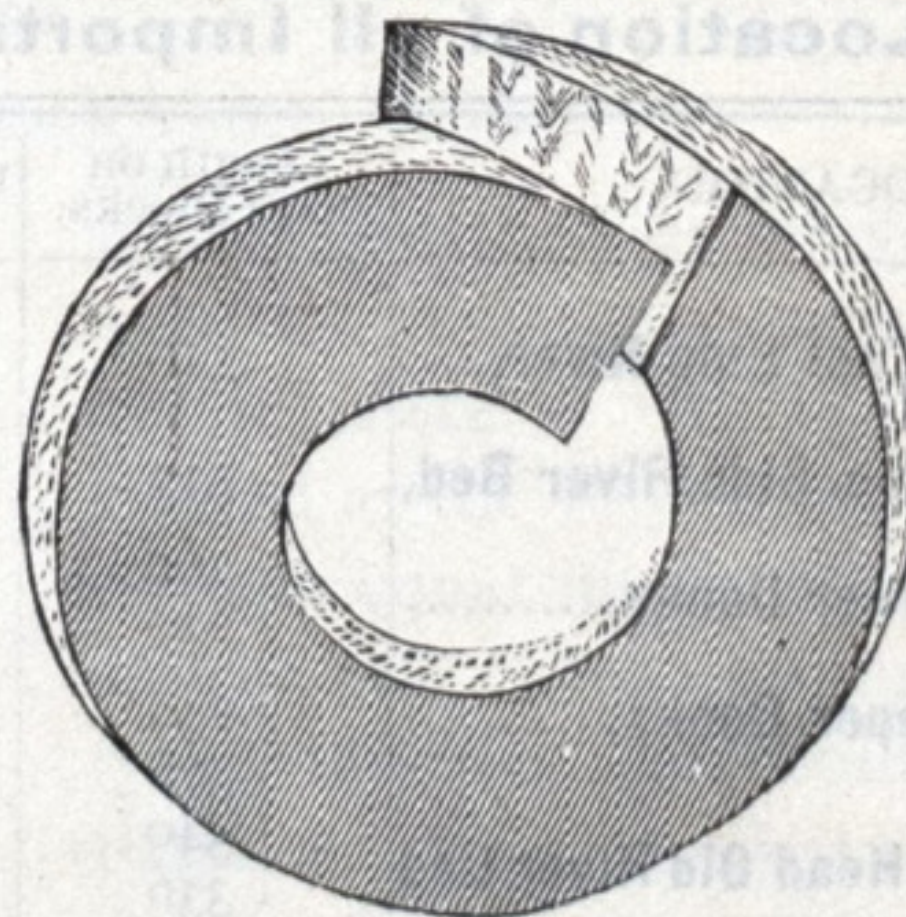
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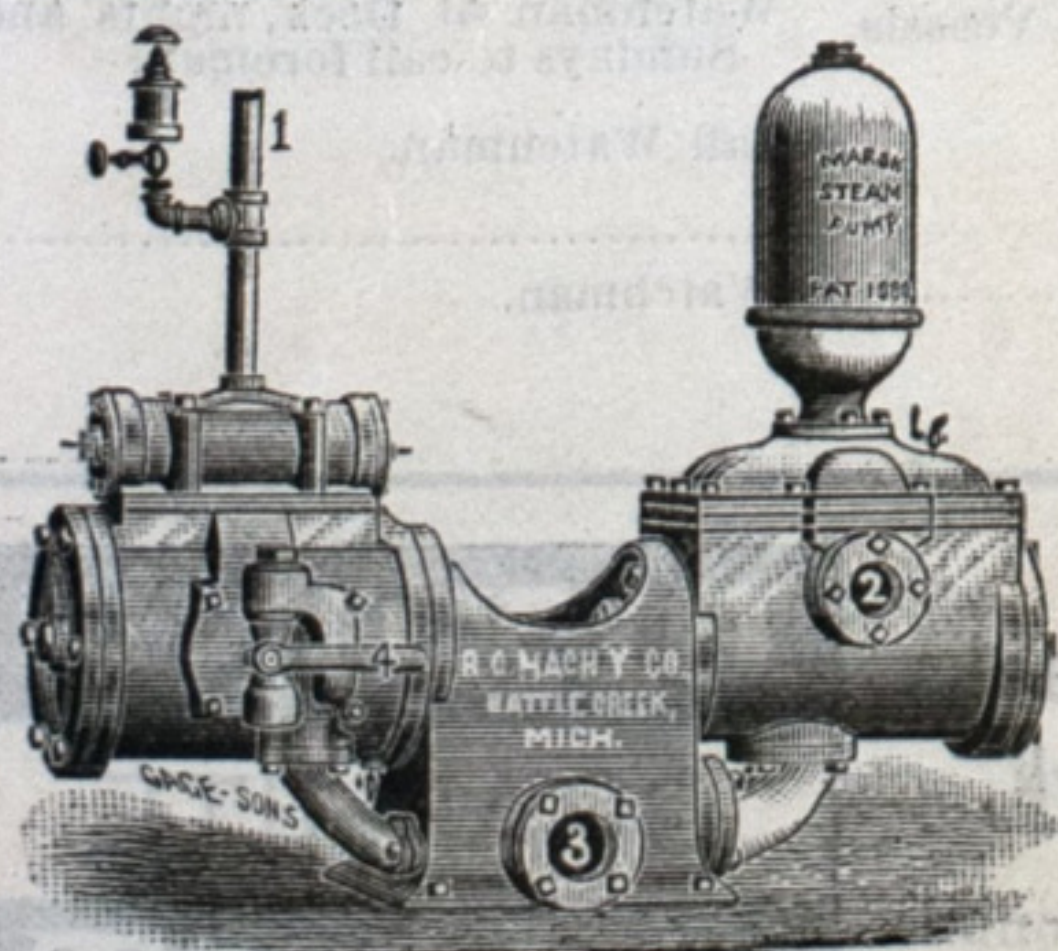
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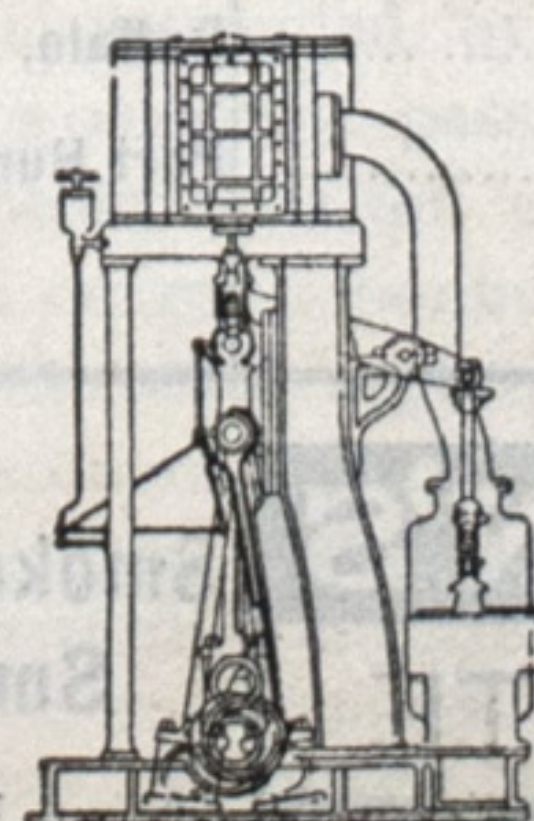
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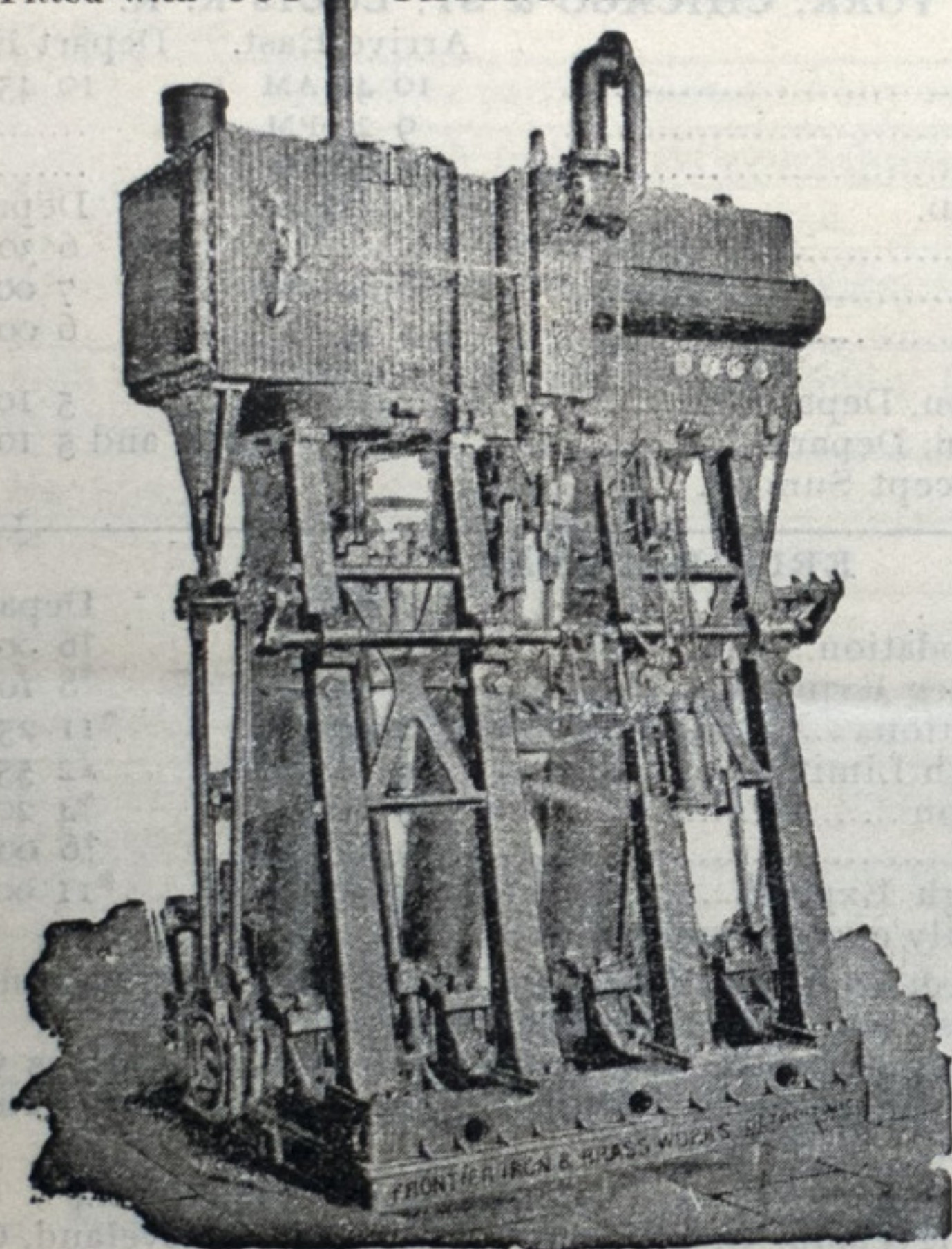
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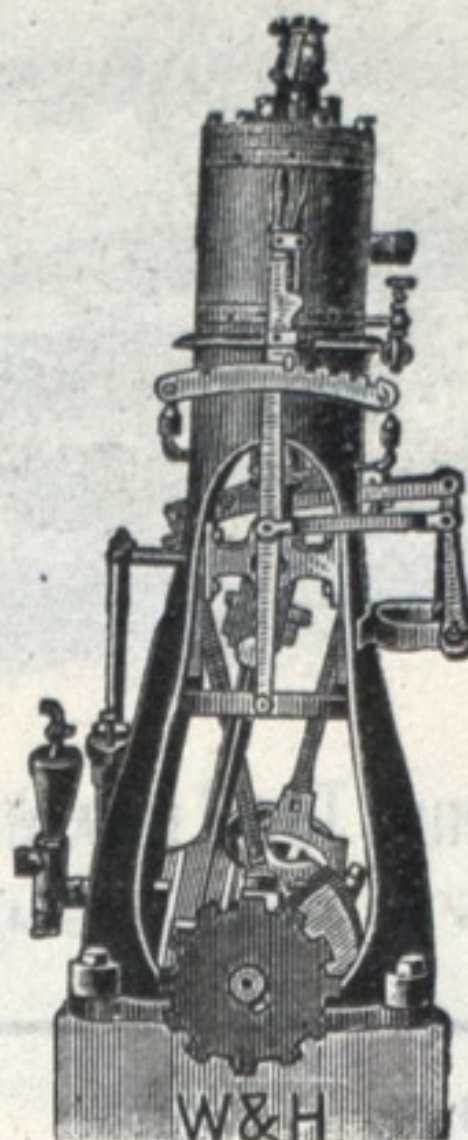
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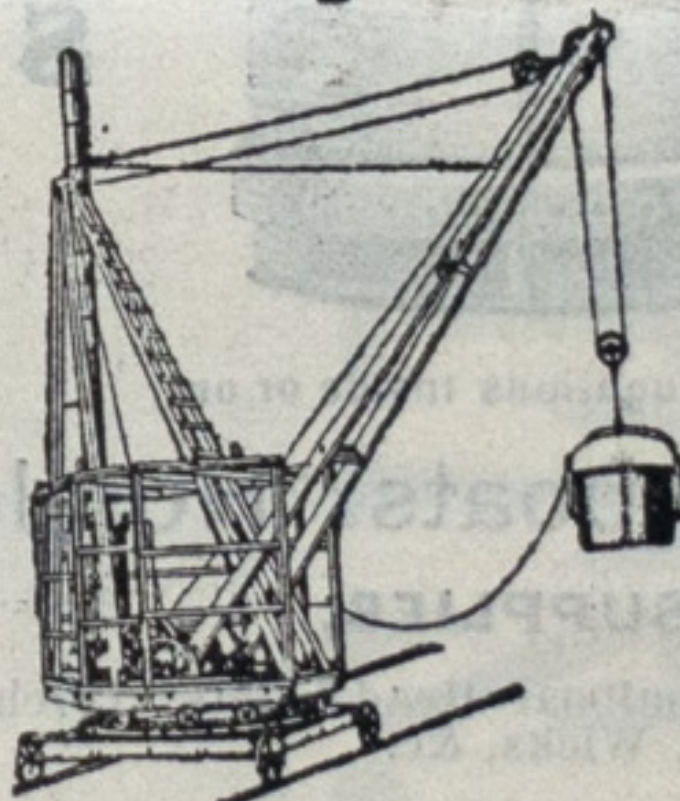
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